

Appl No.: 10/655,986
Reply to Office Action of May 17, 2006

Atty. Dkt. No:
UCF-374

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently Amended). Monodispersed, spherical zirconia (ZrO_2) particles of approximately 10 to approximately 600 nm, synthesized using a sol-gel technique, are pure and free of foreign oxides and exhibit metastable tetragonal crystal structure at room temperature.

Claim 2 (Original). The ZrO_2 particles as in claim 1, wherein said particles are approximately 10 to approximately 30 nm.

Claim 3 (Original). The ZrO_2 particles as in claim 1, wherein said particles are approximately 500 to approximately 600 nm.

Claim 4 (Original). The ZrO_2 particles as in claim 1, wherein the ZrO_2 particles are approximately 100% in the tetragonal phase at room temperature.

Claim 5 (Original). The ZrO_2 particles as in claim 2, wherein the ZrO_2 particles are approximately 100% in the tetragonal phase at room temperature.

Claim 6 (Original). The ZrO_2 particles as in claim 3, wherein the ZrO_2 particles are approximately 100% in the tetragonal phase at room temperature.

Claims 7 – 20 (Cancelled).

Appl No.: 10/655,986
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Claim 21 (Currently Amended). A coating of monodispersed, spherical ZrO_2 particles on a metal substrate, wherein said particles are approximately 10 to approximately 600 nm in size, are synthesized using a sol-gel technique, are pure and free of foreign oxides, exhibit metastable tetragonal crystal structure and are 100% in the tetragonal phase.

Claim 22 (Cancelled).

Claim 23 (Original). The coating, as in claim 21, wherein said particles are approximately 10 to approximately 30 nm in size.

Claim 24 (Original). The coating, as in claim 21, wherein said particles are approximately 500 to approximately 600 nm in size.

Claim 25 (Currently Amended). Monodispersed, spherical particles of approximately 10 to approximately 600 nm, which exhibit metastable tetragonal crystal structure at room temperature, wherein said particles are synthesized using a sol-gel technique, are approximately 100% in the tetragonal state, and are composed of a ceramic oxide, and being composed of a single, pure oxide, which is free of other foreign oxides.

Claim 26 (Original). The monodispersed spherical particles, as in claim 25, wherein said ceramic oxide is selected from the group consisting of zirconium oxide, tin oxide, titanium oxide and indium oxide.

Appl No.: 10/655,986
Reply to Office Action of May 17, 2006

Atty. Dkt. No:
UCF-374

Claim 27 (Original). The monodispersed particles, as in claim 25, wherein said particles are of the size approximately 10 to approximately 30 nm.

Claim 28 (Original). The monodispersed particles, as in claim 25, wherein said particles are of the size approximately 500 to approximately 600 nm.

Claim 29 (Currently Amended). A nanocrystalline ZrO_2 powder, comprising:

monodispersed, spherical ZrO_2 particles of approximately 10 to approximately 600 nm, synthesized using a sol-gel technique, that are pure and free of foreign oxides and which exhibit metastable tetragonal crystal structure at room temperature.

Claim 30 (Currently Amended). The nanocrystalline powder in claim 29 wherein said particles are in the ~~approximateley~~ approximately 100% tetragonal phase, ~~and are pure and free of foreign oxides.~~